ATTACHMENT

FY 98 CWO 11 STATEMENT OF WORK (9/16/97)

CWO 11:   DSN Multi-Use Software (MSW)/SIV, Y2K and NCP CS Porting Support

1. BACKGROUND:

This Statement of Work (SOW) is for the maintenance, enhancement, and user support of DSN Multi-USE Software (MSW) including 890-201 software, Subsystem Interface Verify (SIV) Tool, Y2K, and NCP Common Services (CS) Delivery #1 porting to FTS DEC Alpha support.

The DSN Multi-Use Software consists of three sets of programs, Common Software (CSW), Shared Software (SSW) and 890-201 software, which provide functions and protocols used by subsystems within the Deep Space Communications Complexes (DSCC) and JPL.

Common Software (CSW) provides LAN Communications (890-131) Protocol; Buffer and Queue Management (inter task communications); TCT Time Code; Monitor & Control Protocols (890-132) for Operator Directives and Responses, Monitor Data, Support Data, Display Requests and Responses, and Event   Notices; and other services.

Shared Software (SSW) is a layer on top of CSW, and provides Local Terminal Control, Automated Tester, Display Generation, additional Operator Directives and Monitor Data processing, and other functions for an application to build on.

890-201 software is the network level protocol for digital data communications between subsystems at different facilities in the DSN. DSN IP packets will be the unit of data exchanged between nodes. The DSN IP will allow DDD (DSN Data Delivery) protocol to run above it.

The SIV is a test tool that provides a means to simulate and test DSN Subsystem interfaces as defined in interface agreements (820-16 and 820-13). The SIV generates interface data at the bit-level, essentially prototyping an interfacing subsystem without the expense of creating special simulation code for that subsystem. It also receives data from a subsystem, dumps it in a readable format, and validates the head and contents.

The Year 2000 (Y2K) Compliance Task is to ensure that the DSN software and firmware programs and operating systems will be able to make the transition to year 2000.

The NCP formed by the TMOD Data Services Office, will implement the recommendations of the TMOD Services Fulfillment Reengineering Team (RET). The NCP implements the data capture and activity planning recommendations. The NCP CS Delivery #1, operating in SUN Platform   only, are including:

> 1.. Monitor and Control Infrastructure (MCIS) Service
> > * Functional Addressing Service (FAS)
> > * Monitor Data Service (MDS)
> > * Message Service (MS)
> > * Monitor and Control Service (MCS)
> > * Event Notification Service (ENS)
> 2.. Catalog Access Service (CATA)
> 3.. Subsystem Controller Framework (SCF)

2. GUIDELINES, CONSTRAINTS and ASSUMPTIONS

For each step of the CWO, all existing capabilities shall be maintained and the implementing priority will be provided by JPL CWO Manager.

JPL EIS (Enterprise Information System) should support FTS DEC Alpha as a DCE client/Server and a part of Pasadena Engineering Cell.

3. WORK TO BE PERFORMED

1. Support Year 2000 (Y2K) Compliance for MSW and SIV:
    Corrections and testing of MSW/SIV Y2K anomalies. Testing is based upon demon-
    strating compliance with DSN Y2K Requirements (820-055) and using methodologies
    suggested in the DSN Year 2000 Compliance Test Plans, Requirements and Procedure
    document.:

    1. MSW includes code modifications , internal testing and documentation for the
        seven (7) MSW platforms.
    2   SIV includes code modifications, testing and documentation for the SIV on the
        SUN platform.
    3. New Y2K Common Utilities development:
        a. Sim Time Interface
        b. ToolKit DSN Utilities
    4. Integration testing of DSN MSW with Y2K vendor certified versions for the
        following OS platforms as they become available:
        a. SUN
        b. VxWorks (68040, PPC)
        c. Modcomp REALIX (68K, 88K)
        d. OS/2
        e. VadsWorks
    5. SIV tools additional features to support testing.
    6. 60 man-days support for DSN SubsystemsY2K testing.
    7. Additional development as needed for subsystem Y2K support.

2. Porting of NCP Common Services(CS) Delivery #1(SUN Platform) to Frequency and
    Timing Subsystem (FTS) Controller DEC Alpha Platform. The program sets for CS
    Delivery #1 include:
    1. Monitor and Control Infrastructure Services (MCIS) (DSI-6000-OP-A)
    2. Subsystem Controller Framework (SCF) (DSI-6001-OP-A)
    3. Catalog Service API (CATA) (DSI-6004-OP-A)
3. Continue to support the delivered MSW including 890-201 for seven (7) platforms on the
    following subsystems: ACS, BVR, CDR, CIS, CMCS, CPA, DGT, ETX, High Rate SPT,
    MDA, MPA, UGC, NRT, DSP-R, RNS, SCP, SPT, TCA, TGC, TSA, etc.
    *   Generate a baseline version MSW and delivery to SPMC.
    *   Upgrade MSW related documentation.
    *   Provided there is funding for a third cognizant person the following will also be done:
        *   Correct/fix all outstanding MSW anomalies

4. Continue to support the Subsystem Interface Verify (SIV) testing tool for SUN platforms

4. IMPLEMENTATION SCHEDULE

1. Produce a Work Implementation Plan (WIP) for the tasks defined in this Statement of
    Work, which includes a detailed schedule for the delivery of items. The WIP is to be
    delivered to JPL 30 days after start of the CWO. The period for accomplishment of the
    work 9/24/97 - 9/21/98.

2. Support Year 2000 (Y2K) Compliance for MSW and SIV:
    *   Corrections and testing of Y2K anomalies and integration testing with Y2K vendor
        certified versions of OS platforms as they become available:
        a. MSW completed by 3/01/98.
            *   SUN completed by 12/15/97
            *   VxWorks (68040, PPC)
            *   Modcomp REALIX (68K, 88K)
            *   OS/2
            *   VadsWorks
        b. SIV on SUN platform completed by 3/15/98.

* New Y2K Common Utilities development:
  a. Sim Time Interface completed by 5/11/98.
  b. ToolKit DSN Utilities completed by 6/26/98.
* SIV tools additional features to support testing completed by 3/15/98.
* Support DSN SubsystemsY2K testing from 12/01/97 to 9/20/98.
* Additional development as needed for subsystem Y2K support.

3. Porting of NCP Common Services(CS) Delivery #1(SUN Platform) to Frequency and Timing Subsystem (FTS) Controller DEC Alpha Platform.
   1. Monitor and Control Infrastructure Services (MCIS) (DSI-6000-OP-A) by 8/1/98
   2. Subsystem Controller Framework (SCF) (DSI-6001-OP-A) by 8/1/98
   3. Catalog Service API (CATA) (DSI-6004-OP-A) by 8/1/98

4. Provide a baseline MSW version including documentation and delivery to SPMC by 3/15/98.

5. Provide MSW final software documentation (the User's Guide) by 9/21/98.